

**Notice of Allowability**

Application No.

10/612,573

Examiner

Ted Kim

Applicant(s)

SHEPPARD ET AL

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 04/21/2005.
2. ☒ The allowed claim(s) is/are 1-24.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

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|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Aileen Law on 5/13/05.

The DRAWINGS of the application has been amended as follows:

The following changes to the drawings have been approved by the examiner and agreed upon by applicant: the blank boxes would be labeled in a manner consistent with the specification to more easily ascertain the invention. Applicant is referenced to parent patent 6,632,846 for acceptable labeling practices. In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

### REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance: the prior art of record do not fairly teach in permissible combination the claimed invention. The closest art of record is Egan (3,986,349). Egan teaches a process including comprising introducing a carbonaceous raw material 8, water 9 and oxygen 7 into a syngas generator 10 under syngas forming operating conditions, introducing a portion of the syngas into a Fischer Tropsch reactor 18 forming primarily hydrocarbons and carbon dioxide (col. 5, lines 5+), there is a hydrogenation zone which results in H<sub>2</sub>O, CO<sub>2</sub>, unreacted H<sub>2</sub> and CO

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– this is NOT the same as a water-gas-shift reactor to produce primarily hydrogen and carbon dioxide. Also, note that the claims require the water-gas-shift reactor to receive a portion of the syngas along with water and the Fisher-Tropsch (F-T) tail gases. 21 does NOT receive a portion of the syngas along with water, but only the F-T tail gases 19.

Separation is generally taught in 35 and CO<sub>2</sub> scrubbers are generally known in the art but note that CO<sub>2</sub> is present in the gas fuel 28 -- hence it would not appear that it was previously separated. However, the additional burning of the gases rich in hydrogen from the separation zone 35 in the gas turbine combustor of a combined cycle plant is taught. Note that there are two possible gas turbine combustors 36 for the liquid fuel and 35 for the gaseous fuel. The additional use of combined cycle gas turbines is taught (see col. 8, lines 66+).

“The effluent from the hydrogenation reaction zone is passed via line 23 into separation zone 25. The effluent will comprise primarily hydrocarbons, H<sub>2</sub>O, CO<sub>2</sub>, unreacted H<sub>2</sub> and CO, and small residual amounts of oxygenated components. The various components can be separated by conventional means, for example by distillation, but it is preferred to pass the effluent first through a condenser, separating the effluent into gaseous and liquid fractions. The condensed liquid fractions will phase-separate, with the hydrocarbons comprising one phase and water comprising the second phase. The liquid hydrocarbon phase will contain small residual amounts of water, which can be removed by conventional means. The **normally liquid hydrocarbons** are passed via line 27 to storage zone 29. The normally liquid hydrocarbon fraction makes an excellent turbine fuel, since it boils in the range 60.degree. to 800.degree. F, is essentially free of sulfur compounds ash, and oxygenated components. The water phase can be disposed of after removal of residual quantities of contaminants such as acetic acid, via line 26. Preferably, however, the water phase including any contaminants, is recycled to the gasifier 10 thus avoiding waste-water treatment costs and providing a means for recovery of the carbon-values of any contaminants. The H<sub>2</sub> in the gaseous fraction can be recycled to the hydrocracker after removal of at least a portion of the CO, CO<sub>2</sub> and any of the light uncondensed hydrocarbons such as methane and ethane. Also, all or portions of the light hydrocarbons formed in the Fischer-Tropsch or hydrocracking steps, for example, the C.sub.3 and C.sub.4 hydrocarbons, can be separated and used in other processes or can be reformed to produce H<sub>2</sub> and CO for recycle to the Fischer-Tropsch step. The C.sub.3 and C.sub.4 hydrocarbons can also be liquefied and stored under pressure and used as needed

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in the generation of additional power. Preferably, however, the gaseous fraction, 28, separated in separation zone 25, containing H<sub>2</sub>, CO, CO<sub>2</sub> and light hydrocarbons such as methane, ethane, propane and butane, is combined with a portion of the synthesis gas from the gasifier via lines 14 or 16 and the combined gases are fed via line 30 to combustion zone 35 [i.e. the gaseous fuel], wherein the gases are combusted and the exothermic heat of reaction is used to generate steam, 31, which steam in turn is used to rotate steam turbine 32 to generate a base-load electrical power output. The combusted gases can, of course, be expanded through an open-cycle turbine [i.e. a gas turbine – also note gas turbine 38 is also disclosed but runs on the liquid fuel 27] rather than used to generate steam, but it is preferred to generate high-pressure steam since steam turbines are generally more efficient than open-cycle gas turbines (see col. 7, lines 56-col. 8, line 38).”

Hence, while aspects of the invention are taught by the Egan reference there, the invention as a whole is distinct from the art of record.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

### *Contact Information*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm; Monday to Thursday and every other Friday.


The fax numbers for the organization where this application is assigned are 703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Cheryl Tyler, can be reached on 571-272-4834.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

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May 16, 2005	Fax (After Final)	703-872-9306
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Patents Assistance Center	Telephone	800-786-9199

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